Amendments to the Claims

1. (Currently Amended) An orthogonal frequency division multiplexing (OFDM) communication device [[,]] comprising:

a time multiplexor;

a synchronization signal generator operatively connected to the time multiplexer; and

a data supplier operatively connected to the time multiplexor, wherein a ~~zero amplitude~~ zero-amplitude reduced preamble signal, which is obtained by passing a specified synchronization preamble through an ideal low-pass filter in the synchronization signal generator to reduce a signal component to ~~near-zero~~ near-zero amplitude within a time domain, is time-multiplexed in the time multiplexor with transmit data received from the data supplier to generate an OFDM transmit signal.

2. (Currently Amended) The OFDM communication device according to claim 1 [[,]] wherein said ideal low-pass filter comprises [[an]] a fast Fourier transform (FFT) section for subjecting an input signal to ~~a fast Fourier transform (FFT)~~ an FFT and a zero substitution section for providing zero substitution for FFT section output components having a frequency higher than specified.

3. (Currently Amended) The OFDM communication device according to claim 2 [[,]] wherein said ideal low-pass filter comprises a table that stores values obtained when input signals pass through said ideal low-pass filter in accordance with values of the input signals.

4. (Currently Amended) The OFDM communication device according to claim 1 [[,]] wherein said ideal low-pass filter comprises a table that stores values obtained when input signals pass through said ideal low-pass filter in accordance with values of the input signals.

5-10. (Cancelled)

11. (New) A method for use in an orthogonal frequency division multiplexing (OFDM) communication device for generating and transmitting an OFDM signal, the method comprising:

generating a zero-amplitude reduced preamble signal having no frequency components higher than a specified pass band;

generating transmit data;

multiplexing the preamble signal and the transmit data to generate a multiplexed signal such that the transmit data occupy frequency components that avoid interference from the preamble signal in the multiplexed signal;

transforming the multiplexed signal by a Inverse Fast Fourier Transform;

adding a guard interval to the transformed multiplexed signal to form an OFDM signal; and

transmitting the OFDM signal including the preamble signal and the transmit data.

12. (New) The method of claim 11 wherein the preamble signal is based on a specified synchronization preamble.

13. (New) The method of claim 12 wherein the preamble signal is based on a fast Fourier transform of the specified synchronization preamble.

14. (New) The method of claim 12 wherein the preamble signal is obtained by passing the specified synchronization preamble through an ideal low-pass filter.

15. (New) The method of claim 11 wherein the preamble signal has a reduced amount of near-zero signal component amplitude within a time domain.

16. (New) The method of claim 11 wherein the transmit data occupy frequency components above the specified pass band of the preamble signal.

17. (New) The method of claim 11 wherein the transmit data do not occupy at least the frequency components corresponding to the preamble signal in the multiplexed signal;

18. (New) A method for use in a orthogonal frequency division multiplexing (OFDM) communication device for receiving an OFDM signal, the method comprising:

receiving the OFDM signal including a zero-amplitude reduced preamble signal and a transmit data signal, wherein the preamble signal is based on a first specified synchronization preamble, wherein the preamble signal has no frequency components higher than a specified pass band, and wherein the transmit data occupy frequency components that avoid interference from the preamble signal in the received OFDM signal;

determining a cross correlation between the received OFDM signal and a second specified synchronization preamble; and

calculating a synchronization position in accordance with the determined cross correlation.

19. (New) The method of claim 18 wherein the synchronization position is shifted from a peak value position by a specified amount of time;

20. (New) The method of claim 18 wherein the preamble signal is a fast Fourier transform of the first specified synchronization preamble.

21. (New) The method of claim 18 wherein the preamble signal is obtained by passing the first specified synchronization preamble through an ideal low-pass filter.

22. (New) The method of claim 18 wherein the preamble signal has a reduced amount of near-zero signal component amplitude within a time domain.

23. (New) The method of claim 18 wherein the transmit data occupy frequency components above the specified pass band of the preamble signal thereby avoiding interference from the preamble signal in the received OFDM signal.

24. (New) The method of claim 18 wherein the transmit data do not occupy at least the frequency components corresponding to the preamble signal in the received OFDM signal.